



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,468	07/23/2003	Christoph Wendel	003-066	9882
36844	7590	08/26/2004	EXAMINER	
CERMAK & KENEALY LLP			BENSON, WALTER	
P.O. BOX 7518			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22307			2858	

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/625,468

Applicant(s)

WENDEL ET AL.

Examiner

Walter Benson

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on preliminary Amendment filed 7/23/03.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/23/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

1. Claims 1-18 are presented for examination.

### ***Information Disclosure Statement***

2. The information disclosure statement filed 10/23/03 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

### ***Specification***

3. The disclosure is objected to because of the following informalities:  
Page 1, [0001], refers to claim 1 and page 2, [0011] refers to claims 1, 7, 11 in the specification. To be in the specification, claim information is required to be spelled out in detail.  
Appropriate correction is required.

*Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 6, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Needle et al. (US Patent No. 6,323,654 and Needle hereinafter).

6. As to claim 1, Needle discloses a method for detecting partial conductor short circuits in a conductor including a plural mutually insulated partial conductors, comprising:

connecting together the partial conductors by a short circuit at one or both ends of the conductor (col. 3, lines 63-67);

measuring the propagation behavior of time-varying electrical signals on the conductor (col. 4, lines 34-43);

comparing the measured propagation behavior with the propagation behavior of a reference conductor without partial short circuits (col. 4, lines 1-9);

determining the presence of partial conductor short circuits from changes in the propagation behavior from the comparing (col. 4, lines 18-24).

Art Unit: 2858

7. As to claim 6, Needle discloses a method for detecting partial conductor short circuits in a conductor including a plural mutually insulated partial conductors, comprising:

Feeding the time-varying electrical signals into an end of the conductor provided with the short circuit (col. 3, lines 63-67);

Where an auxiliary conductor is arranged parallel to the conductor at a distance, and comprising receiving and evaluating signal returning via the auxiliary conductor (col. 2, lines 50-55).

8. As to claim 12, Needle discloses a method for detecting partial conductor short circuits in a conductor including a plural mutually insulated partial conductors, comprising

where the conductor comprises partial conductors which are electrically separated from one another at both ends of the conductor, and further comprising a short circuit at least one of the two ends of the conductor before measuring (col. 4, lines 26-33).

9. Claims 7-10 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Sinniger (US Patent No. 3,896,376 and Sinniger hereinafter).

10. As to claim 7, Sinniger discloses a device useful for detecting partial conductor short circuits comprising:

a retaining device (1, fig. 1; col. 4, lines 7-10);

a conductor and an auxiliary conductor arranged in parallel and at a fixed distance to each other in the retaining device (30, 2, Fig. 1; col. 5, lines 13-19);

Art Unit: 2858

a signal source (5, Fig. 1; col. 4, lines 56-59);

a measuring device (21, Fig 1);

an input and return lead (col. 3, lines 20-24);

where the conductor is connected at one end via input lead to the signal source (col. 3, lines 32-38);

where the auxiliary conductor is connected via the return lead to the measuring device (col. 3, lines 66-67 and col. 4, lines 1-6).

11. As to claim 8, Sinniger discloses a device useful for detecting partial conductor short circuits further comprising:

a network analyzer, and where the signal source and the measuring device are part of the network analyzer (col. 2, lines 6-11).

12. As to claim 9, Sinniger discloses a device useful for detecting partial conductor short circuits further comprising:

A signal separating filter for matching the signal impedance of the fed in and received signals between the input lead to the conductor and the return lead from the auxiliary conductor (col. 3, lines 43-48).

13. As to claim 10, Sinniger discloses a device useful for detecting partial conductor short circuits comprising:

Art Unit: 2858

Where the auxiliary conductor comprises an insulated copper conductor (col. 3, lines 57-61).

14. As to claim 18, Sinniger discloses a device useful for detecting partial conductor short circuits comprising:

Where the conductor comprises a conductor to be measured or a reference conductor (col. 3, lines 56-64).

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 2, 3, 4, 5, and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Needle in view of Medelius et al. (US Patent No. 5,977,773 and Medelius hereinafter).

Although the system disclosed by Needle shows substantial features of the claimed invention (discussed in paragraphs above), it fails to disclose:

where measuring the propagation behavior comprises a complex reflection behavior [claim 2];

where measuring comprises measuring the propagation behavior of periodic signals

Art Unit: 2858

of a predetermined frequency and where the frequency is varied in a predetermined frequency range for measuring the reflection behavior [claims 3, 13, 14];

comparing comprises receiving and comparing electrical parameters of signals returning from the conductor [claim 3];

where the frequency range is varied in the range of a few kHz to a few 100 MHz [claims 4, 15];

where the time varying signals, comprise periodic or non periodic signals of a predetermined signal form, further comprising receiving and evaluating signals coming back from the conductor regarding electrical parameters of the signals [claim 5];

where the electrical signal parameters comprise signal form [claim 17].

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Needle, as evidenced by Medelius.

In an analogous art, Medelius discloses a non-intrusive electrical cable tester having:

where measuring the propagation behavior comprises a complex reflection behavior [claim 2] (col. 4, lines 26-41) to provide the increased resolution of the signal; where measuring comprises measuring the propagation behavior of periodic signals of a predetermined frequency and where the frequency is varied in a predetermined frequency range for measuring the reflection behavior [claims 3, 13, 14] (col. 5, lines 9-14) to accelerate the fault location process;

comparing comprises receiving and comparing electrical parameters of signals returning from the conductor [claim 3] (col. 5, lines 17-24) to determine the type fault in the conductor;



Art Unit: 2858

where the frequency range is varied in the range of a few kHz to a few 100 MHz [claims 4, 15] (col. 3, lines 15-24) depending on fault location;

where the time varying signals, comprise periodic or non periodic signals of a predetermined signal form, further comprising receiving and evaluating signals coming back from the conductor regarding electrical parameters [col. 2, lines 5-7] of the signals [claim 5] (col. 6, lines 3-8) to accurately determine a fault in the conductor;

where the electrical signal parameters comprise signal form [claim 17] (col. 4, lines 56-64).

Given the teaching of Medelius, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Needle by employing the well known or conventional features of cable testing, such as disclosed by Medelius, in order to monitor the impedance presented by the conductor/cable and determine a fault with high accuracy and for the purposes discussed above.

17. As to claim 16, Needle discloses where the predetermined signal form comprises rectangular or triangular signal forms (col. 5, lines 3-7)

18. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Needle in view of Haldemann (US Patent No. 6,703, 752 and Haldemann hereinafter).

Although the system disclosed by Needle shows substantial features of the claimed invention (discussed in paragraphs above), it fails to disclose:

Art Unit: 2858

where the conductor comprises a Roebel bar from the stator of an electric machine [claim 11].

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Needle, as evidenced by Haldemann

In an analogous art, Haldemann discloses a stator winding bar for an electrical machine having:

where the conductor comprises a Roebel bar from the stator of an electric machine [claim 11] (col. 2, lines 48-51).

Given the teaching of Haldemann, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Needle by employing the well known or conventional features of a stator winding bar, such as disclosed by Haldemann, in order to extend flux linkage to the end windings.

#### **Prior Art Made of Record**

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

A. Wissman et al. (US Patent No. 5,14, 608) discloses a method and apparatus for tracing cables with waveforms such as sine, triangular, etc.

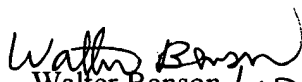
Art Unit: 2858

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter Benson whose telephone number is (571) 272-2227. The examiner can normally be reached on Mon to Fri 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (571) 272-2233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Walter Benson  
Patent Examiner

August 21, 2004